MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2018/2019

TSE2231– SOFTWARE ENGINEERING FUNDAMENTALS

(All sections / Groups)

4 MARCH 2019
2.30pm – 4.30pm
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This Question paper consists of 3 pages with 5 Questions only.

2. Answer all **FIVE** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

QUESTION 1

a. Define software engineering. (2 marks)

b. What are the differences between generic software product development and custom software development? (4 marks)

c. Discuss **TWO (2)** differences how Agile software development models differ from the Waterfall model. (4 marks)

QUESTION 2

a. The expected duration of each task has been calculated. The task dependencies are shown in the **Table 1**.

Table 1

Task	Description	Order	Duration
A	Produce specification	To be completed first	1 week
B	Write test plans	Start when A is complete	3 weeks
C	Software design	Start when A is complete	2 weeks
D	Software code	Start when B is complete	3 weeks
E	Developer test	Start when C is complete	3 weeks
F	Software test	Start when D and E are complete	4 weeks

i. Construct a PERT chart for the project based on the information given in **Table 1**. (4 marks)

ii. Identify the critical path and hence the minimum time to completion. (2 marks)

iii. Describe the tasks where there is slack time in the system. (2 marks)

b. A project manager has been transferred to a major software development project that is in the implementation phase. Explain the highest priority for this project manager. (2 marks)

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QUESTION 3

a. What is feasibility study? Discuss **FOUR (4)** contents that should be included in the feasibility report. (3 marks)

b. Explain the need to apply questionnaire as a fact finding technique. (3 marks)

c. Suggest who might be the stakeholders in a university's student records system. Explain why it is almost inevitable that the requirements of different stakeholders will conflict in some ways. (4 marks)

QUESTION 4

a. Designing is one of the important steps of software development.

   i. Discuss **TWO (2)** characteristics of a good design. (2 marks)

   ii. Describe the principle of information hiding as it applies to software design. (3 marks)

b. To buy a book electronically from chapters.com, a customer needs to select the book from a list provided by Chapters' e-Commerce system, provide credit card information to the system, then the system gets authorization from the bank for the payment, and if positive, confirms the sale. The order is then sent to the orders department and when the book becomes available, it is shipped to the customer. Also, the order department charges the customer's credit card by informing the bank of the amount. Draw a sequence diagram that models this process. (5 marks)

QUESTION 5

a. Maintainability is one of the most important software quality characteristics. Define software maintainability. (2 marks)

b. Why is it important for a software development organization to obtain ISO certification? (4 marks)

c. Software testing is an organizational process within software development in which business-critical software is verified for correctness. Explain when to use functional and structural testing. (4 marks)

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